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BY SIMON N. PATTEN.

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BY WILLIAM W. FOLWELL.

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MALTHUS AND RICARDO,

BY

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MALTHUS AND RICARDO.

The recent publication of Ricardo's letters to Malthus has attracted the attention of the public to those economic controversies of the first quarter of our century, in which both Malthus and Ricardo took such prominent parts. At an earlier period Adam Smith formulated many of the leading doctrines which have since become economic axioms. He, however, had an easy task to perform. All the propositions he developed were at least dimly seen by previous writers, and many of them had been carefully discussed by scholars familiar with special topics. Locke, Hume, Steuart and others, had accomplished much, each in his own field, and it only needed a careful thinker to collect the scattered material, write it in a harmonious whole and bring out those underlying principles which have made economics a real science. I do not wish to disparage the services of Adam Smith, yet it should be recognized that his task was made easy by the labors of his predecessors and pleasant by the harmony of his views with the spirit of the age in which he lived. From the very start he had no worthy opponent, and all the laurels of victory have been bestowed upon him ever since by every class of economic writers. From one extreme of economic opinion to the other, from inductive as well as deductive writers, there has been a constant stream of praises bestowed upon the founder of our science arising from the feeling that each writer had, that Adam Smith was really on his side. The father of Political Economy doubtless merits all the praise

which his many disciples have bestowed upon him, yet fortune has favored him in casting his lot in such pleasant ways.

The very opposite of this has been the lot of economists, to whose views I desire at the present time to call attention. Malthus and Ricardo are, indeed, familiar names, and posterity is not likely soon to forget either of them, yet as their names are attached to disagreeable doctrines, they are thought of as enemies of their species rather than as public benefactors. Malthusian and Ricardian are words usually employed as terms of contempt, and even the best friends of these economists seek rather to apologize for their short-comings than to offer a sympathetic defence.

By examining the conditions under which they wrote it is easy to see why Adam Smith is remembered for the best of the work he did, while Malthus and Ricardo are known mainly for their worst. What Adam Smith said was in harmony with the tendencies of his time. The age that had just passed had experienced the evil effects of governmental interference in its worst form, and was ready for the doctrine that that state governs best which governs least. To place the production of wealth within the domain of natural law and out of the reach of the disastrous influence of ill-advised public officials, presented to the people of the last century the only possible relief from the evils of the then prevalent forms of parental governments. The eighteenth century was a century of optimists and they welcomed the views of Adam Smith as allowing an extension of their hopes to a new field. These optimistic hopes were bound to be dissipated, and Malthus and

Ricardo were the unfortunate instruments which brought the people of their age back from utopian ideals to the stern realities of that hard world in which we must all live and work. The law of population showed that there were real obstacles to progress which were not of a political nature, and that the social millenium could be reached only after long ages of slow development. No wonder the prophets, who thought they viewed the promised land and hoped soon to taste of its milk and honey, stood aghast at such a doctrine and hurled at its author all the offensive adjectives they could command. But their cup was not yet full, for with this doctrine were soon coupled others which seemed to take away all hope and make the future a dismal abyss. It was bad enough to find that there was a limit to population, it was worse to discover that as population increased the share of each individual would decrease, but it was unendurable to be told that of this reduced share an ever increasing proportion must be deducted from wages to go as rent into the pockets of a class who earn as much when they sleep as when they wake.

The success of Adam Smith and the partial failure of Malthus and Ricardo are worthy of notice from another point of view. The doctrines of Adam Smith were founded upon the plainest and most fundamental facts of human nature and of the external world. The universal prevalence of those motives which impel every one to seek his own interest, the benefits of commerce, the dependence of efficient production upon the division of labor, the mutual advantage which all nations derive when they concentrate their productive forces upon the production of those com-

modities by which their natural resources and climate will best utilize—could any opinions be more easily proved, or what doctrines would be more agreeable to teach? As the powerful forces upon which these principles are based are seldom or never counteracted, the doctrines derived from them can be proved by inductions from experience, by the history of the past, and by deductions from human nature and the external world. All three methods coincide in their results and every shade of opinion finds an appropriate method of proof by which these doctrines are verified.

The doctrines of Malthus and Ricardo are not capable of so ready a proof. Many opposing tendencies have to be separated one from another, and the relative importance of each element must be measured with care before it can be determined what doctrines are to be drawn from each of the leading tendencies. Only a rigid examination will show the real harmony of these doctrines with the complicated phenomena of life by which we are surrounded, and long explanations must be made before even an active mind can separate the few underlying principles, which are important, from the mass of concrete facts by which they are covered and obscured. Under these conditions induction, deduction and history are liable to furnish different answers to the economic problems in whose solution humanity has so great an interest, and only the most able minds can see clearly through the mists by which they are surrounded and determine the bearing of the unknown coast we are rapidly approaching. It is no wonder that so many fail to grasp the truths for which Malthus and Ricardo labored. The power to combine in proper

proportion the principles deduced from ultimate economic causes with the results of observation and history is a gift which as yet nature has rarely bestowed. Even if it be admitted that many of the conclusions of Malthus and Ricardo are defective, it will require men of equal, if not of still greater ability, to detect their errors and to direct the attention of their fellows to those avenues by which humanity can avoid the rocks which have wrecked so many hopes. In the complexity of economic phenomena there is a sufficient cause for the present slow progress of political economy, and only by the steady growth of higher types of reasoning can we expect a solution of our present problems and the advance of our science to that stage in its development where there will be an unanimity of opinion.

My plan will not lead me to develop in full the leading doctrines of these writers. I desire only to make prominent the differences in the premises from which they started upon their investigations, and to show how the mode of thought which is natural to each of them, influences him in his reasoning and kept them from attaining a common point of view from which they could make their conclusions harmonize. If we wish to determine the methods of investigation used by any author, it is not sufficient to classify him merely according to the school of economics to which he belongs, and regard him as inductive or deductive because his school is supposed to favor one or the other of these methods of investigations. Even at its best such a classification is very crude. Every writer makes free use of both induction and deduction, applying the one method to this class of problems and the other method to that class.

The vital question is to discover in what class of problems the author reasons deductively and in what inductively. The education, occupation and places of residence of each person cause him to view the economic world, influenced by his environment, and will lead him to treat each problem inductively or deductively, according to the prominence which it has in the surrounding economic conditions. Every one is strongly inclined to use deductive reasoning in those fields which are emphasized by his social and economic environment, or by such an education as will lead him to exaggerate the importance of any special phenomena. The more prominent a topic becomes the more it seems subject to law, and the more likely are those who are deeply impressed with its importance to see the law and the premises upon which it is based.

If we examine the works of Malthus and Ricardo to determine what differences in method can be discovered in their writings, it will be found that their controversies about rent and its causes furnish the best material for our purpose. In this discussion we find their differences most prominent, and at the same time they show the thought of each writer uninfluenced by that of the other. The long period of intimate friendship which these writers had with each other in subsequent years could not but exert an influence toward creating a harmony, even if it was not powerful enough to wipe out their fundamental differences. This discussion was opened by Malthus in his "Inquiry into the Nature and Progress of Rent." The origin of this essay is peculiar and throws much light upon the point of view of its author. Adam Smith, in explaining rent, sometimes spoke of it as a

monopoly, without perceiving the real difference between the cause of the high price of food and that of monopolized articles. From this view of rent the appropriation of land caused a monopoly; yet, as property in land leads to its best use, this monopoly was necessary and useful. In an edition of the "*Wealth of Nations*," edited by Mr. Buchanan, this idea of monopoly was pushed still farther. He regarded the rise of rent as prejudicial to society. It takes from the consumer what it gives to the landlord, and thus is a mere transfer of revenue from one class to another.

This argument aroused the mental activity of Malthus in a similar way in which the views of Godwin affected him at an earlier period, and the results of this activity were even more beneficial to the development of economic theory than were those of the earlier epoch. Malthus sought to show that the rise of rent was beneficial to public interests, and was not a mere subtraction from the revenues of one class in the interest of another. In trying to prove this he seems to have stumbled upon the correct cause of the rise of rent and opened up a discussion which did not cease until several of the most important of economic doctrines were added to the science.

From the position of Malthus the cause of rent lies mainly in the fertility of the soil. A high rent is only possible where the fertility of the soil is so great that many more persons can be supported by the produce of the land than are required to cultivate it. The possible rent is determined by subtracting the quantity of food necessary to support those who cultivate it from the whole produce of the land, and it increases as the land becomes more fertile. This

possible rent becomes actual rent through the action of the law of population. Humanity has a great tendency to overpopulation, and any increase of food will be quickly followed by a sufficient increase of population to consume it. "If," says Malthus, "An active and industrious family were possessed of a certain portion of land which they could cultivate so as to make it yield food, and the materials of clothing, lodging and firing, not only for themselves but for five other families, it follows, from the principle of population, that they would soon be able to command the labor of five other families, and the value of their landed produce would soon be worth five times as much as the value of the labor which had been employed in raising it."

From this point of view a tendency to overpopulate, combined with a fertile soil, necessitates a high price for food. The too rapid increase of population cannot be checked without a high price of food. The price of food must be high if the price of men be low.

The development of this doctrine shows why the increase of rent does not come from the other classes, but is an addition to the revenues of the nation. Mankind did not at first cultivate the best lands or use a large amount of capital, nor had they the seeds, tools or knowledge, necessary to produce enough upon the land to make it yield rent. A mere existence was all any land could offer to its cultivators, and the growth of population was held in check from the impossibility of increasing the supply of food. In time with better seeds and tools the produce of the best lands was increased beyond the amount needed to support the labor employed upon it and then rent arose. It would be wrong, however, to say that the

amount of the rent was taken from the laborers. They never had it so that it could be taken away. It came from the increase of produce caused by the improvements in the production of food. With every such improvement the rent of land must rise if the price of food cannot fall. And the price of food cannot fall so long as a strong tendency to overpopulate keeps wages at a minimum.

Malthus thus took up the problem of rent to refute the claim that rent was a mere transference of revenue from one class to another, and not a real gain to society. His position seems reasonable, and his argument conclusive, yet the answer which his opponents were to make lies so plainly on the surface that the wonder is that Malthus did not himself see it and answer it in advance. By a slight change in the premises from which Malthus reasoned, or, perhaps, it will be better to say by overlooking the historical development of mankind, a new standpoint is acquired from which the views of his opponents could be justified. They now had a chain of reasoning simpler than that of Malthus, and one that harmonized more with the tendencies of the age.

It is necessary to retrace our steps a little and show the development of economic doctrine in another quarter before we can clearly perceive the genesis of these new ideas. The influence of the landlord classes upon the legislation of England had been so great that corn laws had been enacted to raise the value of corn above its normal cost. Such a policy necessarily created a bitter opposition and led to one of the most spirited and valuable controversies which have ever been waged about economic doctrine. It was a desire to throw light upon this problem that

caused West to write his memorable essay on the "Application of Capital to Land." This essay contains all the premises from which Ricardo subsequently reasoned with so much force. Instead of presenting the development of rent in an historical manner, as had been done by Malthus, we have the purely hypothetical supposition offered that mankind began upon the best soils with the capital and knowledge necessary for their best use. Then the most fertile land would be taken first, and as poorer soils were brought into use rent would rise. Profits were shown to depend upon the margin of cultivation, and the doctrine of no-rent lands is brought forward as a fundamental condition determining the amount of rent. West, for the first time, established the law of diminishing returns, and clearly saw the immense change in economic doctrine which would follow from this law. Few writers have ever expressed new doctrines more forcibly than West did, and it is no wonder that these doctrines, when further developed by Ricardo, were accepted by the people of that age in preference to those advocated by Malthus.

A closer comparison of these doctrines about rent will be of value to us to show the difference in the premises from which Malthus and Ricardo set out, and the peculiarities of the method of reasoning which each of them was most inclined to use. They each had also a concept of mankind developing under certain physical and social conditions, and the differences in their conclusions are largely due to differences in the conditions under which they supposed society to develop. Malthus was naturally influenced by his studies about the law of population, and those studies led him to investigate the historical develop-

ment of mankind. Ricardo had in mind the case of a new colony from a highly civilized nation. Such a colony would naturally begin cultivation upon the best lands. Here their rate of profits and wages would be high at the start, but would be gradually reduced as the increase of population caused the cultivation of poorer lands to supply the increasing demand for food. The effects of the cultivation of poorer lands now receive an undue prominence, and the connection between the margin of cultivation and the rate of profits could be easily seen. As rent would rise as profits and wages fell, rent would not be an addition to the resources of the nation; it is merely a transfer of wealth from one class to another.

With Malthus, however, the case is different. The society he had in mind began with a low rate of profits and wages, because the earth cannot yield more to those who have so little knowledge, skill and capital. With each increase in productive power there is a possibility of a higher rate of profits and wages, yet the tendency to overpopulate is so strong that the increase of productive power is constantly lagging behind the possible increase of population. Wages and profits are thus kept at a minimum and all the benefit of the increased productive power goes to the owners of land as rent. If rents rise the proper inference is that there has been an increase of productive power, and not as Ricardo infers a transference of wealth from other classes to the landlords. The rise of rent is thus directly associated with agricultural improvements, and great stress is laid upon each step in that enormous progress which separates the agriculture of to-day from the primitive methods of our forefathers.

It is now easy to see the leading characteristics of the two men we have under consideration. It mattered not to Ricardo that the suppositions with which he illustrated his ideas had no likelihood of being realized in our world. He was satisfied so long as the supposition placed the thought he was developing clearly before his readers. Malthus had another ideal. He sought to keep his readers within the realm of facts, and illustrated his arguments by some suitable event in real experience. Ricardo always finds some one cause for each class of phenomena with which he deals, and seeks to separate each cause from all others in such a way that its effects are not lost in their aggregate effect. Malthus usually found two or more possible causes for each class of phenomena, and preferred to deal with complex cases, under the actual condition in which we find them, rather than artificially to separate them.

This tendency in Malthus to find a plurality of causes, where Ricardo sees only one, is the primary cause of the differences in opinion between these two men, as far as their differences depend upon their methods of reasoning. Malthus discovers three causes of rent, while Ricardo recognizes but one—differences in fertility. As to the law of profits Malthus regards them as affected both by the increasing difficulty of procuring the means of subsistence and by the proportion which capital bears to labor. Ricardo, however, has in mind only the natural fall in the rate of profits caused by the increased demand for poorer lands to support an ever enlarging population. In treating of wages Ricardo regards labor as a commodity, and emphasizes those causes which fix the price of labor at that point where the laborers

can merely exist and perpetuate their race without increase or diminution. The opinions of Malthus were not so rigid, and led him to admit the influence of many other causes upon the rate of wages.

The emphasis which Ricardo places upon some one cause of each class of economic phenomena creates in him a strong tendency to use the geometrical method of reasoning. He can hardly be said to have originated any economic doctrine. His value as an economist depends solely upon those trains of deductive reasoning by which every consequence of each premise is brought to light. Had he not overlooked every subordinate cause, and reasoned strictly according to geometrical usage, his writings would have had nothing to distinguish them from those of Malthus or West.

In the first edition of his book on population, Malthus made use of geometrical reasoning. The law of population, as he there states it, is the result of a bold use of supposition and abstraction. The hostile criticisms which this doctrine received seems to have convinced him that he had gone too far. At least in his subsequent writings he draws his illustrations from real life, and does not base his conclusions upon events which rarely occur. For example, in his work upon population, he seeks to discover the natural rate of the increase of population by taking the case of new colonies. Under the abnormal conditions which new colonies present he found that population doubles in twenty-five years; so he took this as the natural rate of increase and founded his law upon these facts. At a later period, in his discussion with Ricardo about rent, the latter made use of new colonies to show that the rate of profits begins at a high

point, when only the best lands are cultivated, and is gradually reduced as poorer lands are brought into use, thus causing a large transfer of revenue from capitalists and laborers to the landlords. Malthus now objects to the use of the abnormal conditions of new colonies to prove propositions which are to be applied to the ordinary conditions of older states. He thought that he had proved that his views were correct, if he showed that under the normal conditions under which civilization must progress, rent was increased from the gains of improved production and not through a reduction of the shares of the other factors in production. This tendency toward a more concrete form of reasoning grew as the years went by, and thus he became separated farther and farther from the abstractions of Ricardo. While he was one of the originators of the theory that differences in fertility are the cause of rent, yet he gradually placed less emphasis upon this cause of rent until in the end he allows it to fall almost out of sight.

Ricardo continued to the end that bold use of supposition and abstraction which has given to him so prominent a place in economic literature. He had but few ultimate premises, yet he made so skilful a use of them that a coherent body of economic doctrines was formed. Every new fact was so skilfully interpreted by him that it added to the strength of his position. The most forcible objections which Malthus could urge against him only gave him an opportunity to make his doctrines more plausible by showing the harmony between them and the supposed objections.

In many respects it is unfortunate that Ricardo did not write more fully his views upon population.

Had he been the author of that first edition of the essay upon population, instead of Malthus, he would not have receded from his original position. The celerity with which Malthus withdrew from his first position acted as detrimentally upon the further development of the principle of population, as did in recent times the hasty retreat of Mill upon the theories concerning wages. In both cases there is a break in the logical development of the subject, which is a puzzle and a stumbling block to all consistent thinkers. No matter how false, in the end, a doctrine may prove to be, it must have all its logical consequences developed, or the science of which it is a part will remain in a hazy condition, out of which no progress can be made. The clearer ideas which we now have about rent we owe to Ricardo and not to Malthus. Had Ricardo, like Malthus subordinated abstract doctrine to concrete ends the discussion would have relapsed into that obscurity in which it was left by Adam Smith, and there it would have remained until some bold thinker was willing to stand by his colors until the strength of his position was thoroughly tested. The retreat of Malthus may have been judicious from a practical point of view, yet it was caused by the abuse of his opponent, and not by the logic of their arguments. The many confusing interpretations of the doctrine which we yet have, show how much the growth of clear thinking has been retarded by the retractions of Malthus. We must find a thinker who is firm enough to withstand abuse before the logical consequences of each interpretation can be fully developed and a decision reached which will stand the tests of scientific investigation.

It is also unfortunate that the author of the law of

population was not a firm adherent of the utilitarian theory of morals. There would then have arisen a classification which would have done much to make the subject clear. If all feelings are viewed as either pleasure or pain, the third class of checks to population which Malthus calls moral restraints, have no logical basis. A restraint is a necessary cause of pain and a reduction of happiness. Had Malthus said a tendency to overpopulate necessarily results in vice, there would have been good reason to introduce the idea of moral restraint, for moral restraint is the antithesis of vice. But moral restraint is not different in kind from misery, if misery is a synonym of pain. Perhaps by misery Malthus meant what we would term poverty. In this case his classification of pains is incomplete, and he should have completed his classification rather than have receded to an illogical position. There are now three distinct doctrines which lie confused in the discussion of the law of population. Does the tendency to overpopulate result in vice; does it necessitate poverty, and does it reduce the total happiness which could be enjoyed if the tendency was less? Each of these doctrines must have its consequences logically developed before the difficulties which now confuse the discussion of the law can be cleared away.

In the foregoing discussion we have kept in view, mainly, the differences in the methods of investigation used by our two authors. They differ not merely in their mode of reasoning, they also differ in the premises from which they start. The social and political environment of each man furnishes him

with most of the premises from which he reasons. He differs from persons reared in other conditions, not merely at single points, but in all those ideas and axioms which naturally become the common property of those who have the same environment. These differences we see most clearly when we compare one nation with another, or the people of one age with their distant ancestors. The effects of the same food and climate, the influence of the same education and religion, the restrictions of the same government, habits and customs, all tend to develop in each nation a peculiar type of civilization which distinguishes its citizens from those of every other nation.

When individuals of different nations meet and endeavor to discuss doctrines or ideas which have arisen out of their social and political environments they differ not so much in their methods of reasoning as in the premises or axioms from which they reason. The peculiarities of home conditions bring certain facts into prominence, and so long as each disputant makes emphatic those facts which become prominent in the peculiar conditions in which he lives, there can be no harmony in results, even if the same method of reasoning be used. If A regards as the general rule what to B is only an exception to some other rule, the difference is not one which can be harmonized by any rules for reasoning. The trouble is that they do not have the same world in mind. One sees the economy of Saturn while the other sees that of Mars. The economies of England, Germany or America do not differ so widely as those of separate planets, yet they are distinct enough to cause the people of each nation to look upon the world in a peculiar way, and to lay stress upon those facts which

their own civilization brings into prominence. The diet also has a commanding influence upon the economy of each nation, and causes the attention of its economists to be attracted to certain problems connected with the food supply. The long discussion by Adam Smith and his followers about the connection between the price of corn and the rate of wages, could have risen only in a nation where one article of food formed the staff of life of the people. So, too, the idea that a high standard of life could be maintained only by a people who use costly food needed the same conditions to develop it. It is an Anglo-Saxon idea that happiness consists in having a small part of a rare article. When this idea is outgrown, a large part of English economic doctrine will be displaced by other doctrines growing out of broader ideas of happiness.

The ideas of Malthus and Ricardo were based upon distinct national economies. In England at this time a new economy was displacing the old. The commercial centers were growing in importance, great discoveries in science were opening up the way to modern production, and wonderful inventions were rapidly revolutionizing industrial processes. England had been a land dominated by agricultural ideas and ruled by the landed classes. Now commercial ideas were coming to the front and the political power was passing from the country to the town.

The home of Malthus was in the country. His education made him familiar with agricultural needs. His environment made him have a keen interest in agricultural improvements and prosperity. His ideas of population were derived from a laboring class degraded by an absurd poor law and cut off from

those stimulating influences which were at work in the growing, progressing cities.

Ricardo and his ancestors were dwellers of the town. His education and vocation made him familiar with commercial usages and led him to emphasize those ideas which dominate the trading world. He felt keenly the evils of bad money and the need of some better regulation of the currency. He viewed the laborer as a commodity because the cost of labor was the only element of the social problem with which he came in contact. He knew nothing of the conditions needed for agricultural prosperity, and viewed an acre of land just as he would a coal mine or a fishery. As he thought only of profits, it is natural that he should see that the rise of rent reduced profits and that profits varied inversely with wages. The trading classes are, by their location, cut off from the producing classes and are vitally connected with them only by the causes raising or lowering rent or wages. Had not Ricardo developed the laws associated with his name some other person of his class would have done so, as they are the inevitable outcome of those ideas which control the trading world.

Adam Smith may have been a true philosopher who studied the industrial development of the world without bias or interest, yet both Malthus and Ricardo were the creatures of their time. They found their premises, each in his peculiar surroundings. Both of them were ardent disciples of Smith. Their interpretations of his doctrines were different, because the economical world in which the one lived differed in many essential features from that of the other. Doubtless each of them thought he was describing England and its economic laws, yet he was impressed

only by certain phases of national life, and even these were seen through glasses colored by preconceived notions and inherited ideals.

Malthus was a much better observer than Ricardo, and the world he saw was much nearer the real England than that of Ricardo. He was, too, a close student of history, from which he derived correct ideas of the motives and sentiments by which real men are moved. In these and many other ways he had an advantage which he often used with skill. Yet from the same sources came also the most marked of his weaknesses. He felt and sympathized with the real world about him and had an uncontrollable desire to justify its ways. His country home and knowledge of English history led him to admire the customs and usages of his ancestors, and often caused him to forget that the England of his day was not the England of the past. He was too eager to espouse the cause of the landed interests and felt too strongly that their prosperity was identical with national prosperity. These views and motives induced him to enter upon all his writings. Had not the ideas of the French revolution threatened the stability of good old English ways he would not have written upon population. Had not the right of landlords to rent been questioned he would not have developed the doctrine of rent. The strength of his feelings was so great that he often forsook a logical position merely to satisfy them. What but his feelings caused him to forsake a logical statement of the law of population? What else could have caused him gradually to lose sight of fundamental truths, which mark his earlier economic discussions until at the end of the controversy with Ricardo they are so modified as to become mere empirical laws?

From Malthus we can see the dangers of one who reasons about the world in which he lives, and the difficulties he encounters when feeling conflicts with judgment. In Ricardo, however, we find a man whose connection with the real world was so slight that he found no difficulty in making the world correspond to his ideal. His success as a stock-broker was so great as to warrant the opinion that he was a good judge of the men with whom he came in contact. He saw that they were moved only by self-interest and bought and sold whenever a profit could be made. They did not hesitate to sell goods to the enemies of England if thereby a penny could be gained. They shipped out gold and culled coins in spite of the laws of the land. They were willing to withhold commodities needed by the government until their own terms were secured. Nor did they scruple to start false rumors of national defeats if they could gain a fortune by depressing public stocks. Is it a wonder that Ricardo thought the whole world is moved solely by selfish motives when that portion of it with which he came in contact exhibited only those characteristics which show themselves upon the world's markets? How easy it is in such a place to form an idea of an economic man, moved only by self-interest, and to think of laborers as commodities who have a cost of production. Ricardo's world was London, and in it men and capital moved from one occupation to another for the slightest gain. It was only natural that he should think other industrial worlds were like his own. Yet in doing this Ricardo was not to blame. He only acted upon the same principles which were in universal use in his time. The ideas of the French

revolution, and the doctrine of natural rights, taught that all men were equal, and that the lowest freeman only needed the overthrow of governmental restriction and inherited customs and habits to place himself upon equality with any of his race. And the utilitarianism of Bentham seemed to teach that self-interest was the only active motive in men, even in their moral actions. Inculcate into a stock-broker the doctrines of Bentham and that of natural rights, and cement the two with the ideas of the French revolution and what is more natural than that he should imagine men to be governed solely by natural law? From this standpoint the key to the knowledge of men lies in any one man, and that of every soil in any one field. We thus have a simple world with but few controlling laws, and a yet simpler man who follows and who obeys a single law.

In spite of its unreality the simplicity of the economy of the world of Ricardo has been of the greatest service to economists. It has made vivid in their minds the working of several simple economic laws which in the real world have their results so intermingled that only a few empirical generalizations can be obtained. Only the abnormal conditions of a new colony, occupied by a people from a civilized nation, or the effect of some great invention or discovery, can give such a prominence to the effects of some one law that its workings can be clearly traced in spite of conflicting laws.

It has often been charged against Ricardo that his economy was not of this world, but of some other planet. The economy of Saturn may be of so simple a nature as to correspond with the conditions laid down by Ricardo, but it has little value to the inhabit-

ants of so complex a world as the one we occupy. This standpoint, however, overlooks the advantage arising from a comparison of different economies, whether they are of different nations or planets. Suppose we could, by some good fortune, obtain a clear account of the economies of the other planets. Can there be a doubt that such knowledge would be of the greatest advantage to us? We would then have a much broader basis upon which to build our science, and could much more easily separate the general from the particular and the permanent from the transient. Each of the planets would have periods in its development when a single cause became so prominent that its effects could be clearly distinguished. Some of the planets would furnish good illustrations of the workings of one group of economic laws, and in other planets could be seen the results of a different combination of conditions.

It would be of especial value if we could learn of a world with other social, legal and moral ideas. All our civilized world has inherited about the same stock of ideas upon these subjects, and thus our history is of little importance in fixing the value of such ideas as factors in the economic development of mankind. Doubtless there are worlds where the effect of legal and moral ideas come out as clearly as the effects of competition do with us. Could we produce a thinker who would give us as vivid a concept of such a world as Ricardo did of the world he discovered, great progress could be made.

We need such a thinker, also, to clear up the mysteries of the consumption of wealth. He must be one who can seize the essential features of the problem and separate them from the complex phenomena

of actual life. Then he must put them together again in a new world where their effects will come out so clearly that they cannot be mistaken. Only a Ricardo can detect the primary laws of human nature upon which the problems of consumption depend, and trace their effects even where they are most obscured by conflicting laws.

Our world is doubtless a small world, yet it is a complex world in which it is difficult to find the proper cause for each effect. We need to become acquainted with simpler worlds, or at least with worlds which are simple where we are complex. Ricardo has given us one such world, and we make a mistake if we do not take the gift and honor the giver. His world is a stumbling block to us only when we confuse it with the real world in which we live. And for this danger we must not blame Ricardo. He was not conscious that his world was not our world. The confusion of the two worlds is due to his followers. They lived in our world and tried to convince us that it was the world of Ricardo, or that we would be in such a world as soon as the force of inherited customs, habits and laws became so weakened that their effects no longer obscured the working of the law of competition. No such danger confronts those who see that each nation and age has its own economy differing in some essential points from all others. Each economy is of value to us in as far as its controlling causes are sufficiently different from our own to bring out the effect of some new law. The economy of Saturn will be of more value to us than that of Rome, if it presents to us in a simple form the effect of some causes which could not be separated from other causes in the more complex economy of

the Roman people. In fact, we are likely to learn more from a Californian, an Australian, or from any new colony where a civilized race is thrown into a new environment, than we are from the mother countries where mankind has steadily developed under the same complex conditions.

Yet from these abnormal conditions only one class of economic laws can be discovered. After we have learned all we can from new colonies, or from older countries, under the peculiar circumstances which follow an industrial revolution, still a large body of doctrines can be discovered only under the complex workings of a high civilization. The qualities, both of man and of land, undergo a gradual modification as civilization progresses from a lower to a higher type. Each real advance creates in man a new class of desires and causes him to use the soil in a new way. With every marked change in the desires of man he can almost be said to discover a new world. New productive qualities are found in every soil and more of the land becomes good land.

Economic Science must therefore develop beyond the simple world in which Ricardo lived into that complex world, the laws of which Malthus tried to elucidate. The industrial progress of this century has been deceptive and conceals the operation of many fundamental laws. When men are thrown under new and more favorable conditions, where fertile soils or great inventions reduce the pressure of the struggle for existence, there is a tendency for those qualities in men to become again prominent which this struggle must weaken and finally displace. Contact with a fresh soil in America has strengthened in its inhabitants many of those qualities which keep

men crude and selfish. The great industrial revolution in England has had the same effect. The increased population has been supplied with food by a poorer use of foreign land, and not by a better use of land at home. The continued exploitation of new lands and mines has allowed an agricultural retrogression to accompany our industrial development. Progress thus seemed to lead to simpler conditions and to a man with primitive qualities. No wonder the economists were deceived and thought the real world would soon conform to the simple suppositions of Ricardo. Could we always progress through exploitation the selfish qualities in man would doubtless soon dominate in him and make him the economic man of Ricardo. It would seem, however, that we are approaching the end of that counter-current through which the crude and the selfish in our natures have been revived. When the end is reached the true direction of advancing civilization will be revealed and the development of a better man will be furthered. Agriculture will then be progressive and new uses for land will change the poor land of to-day into fertile land. The simple economy of Ricardo will then lose its charm, and we shall all appreciate more fully the struggle of Malthus to withstand the current along which the economists of his day were carried and by which they were deceived.

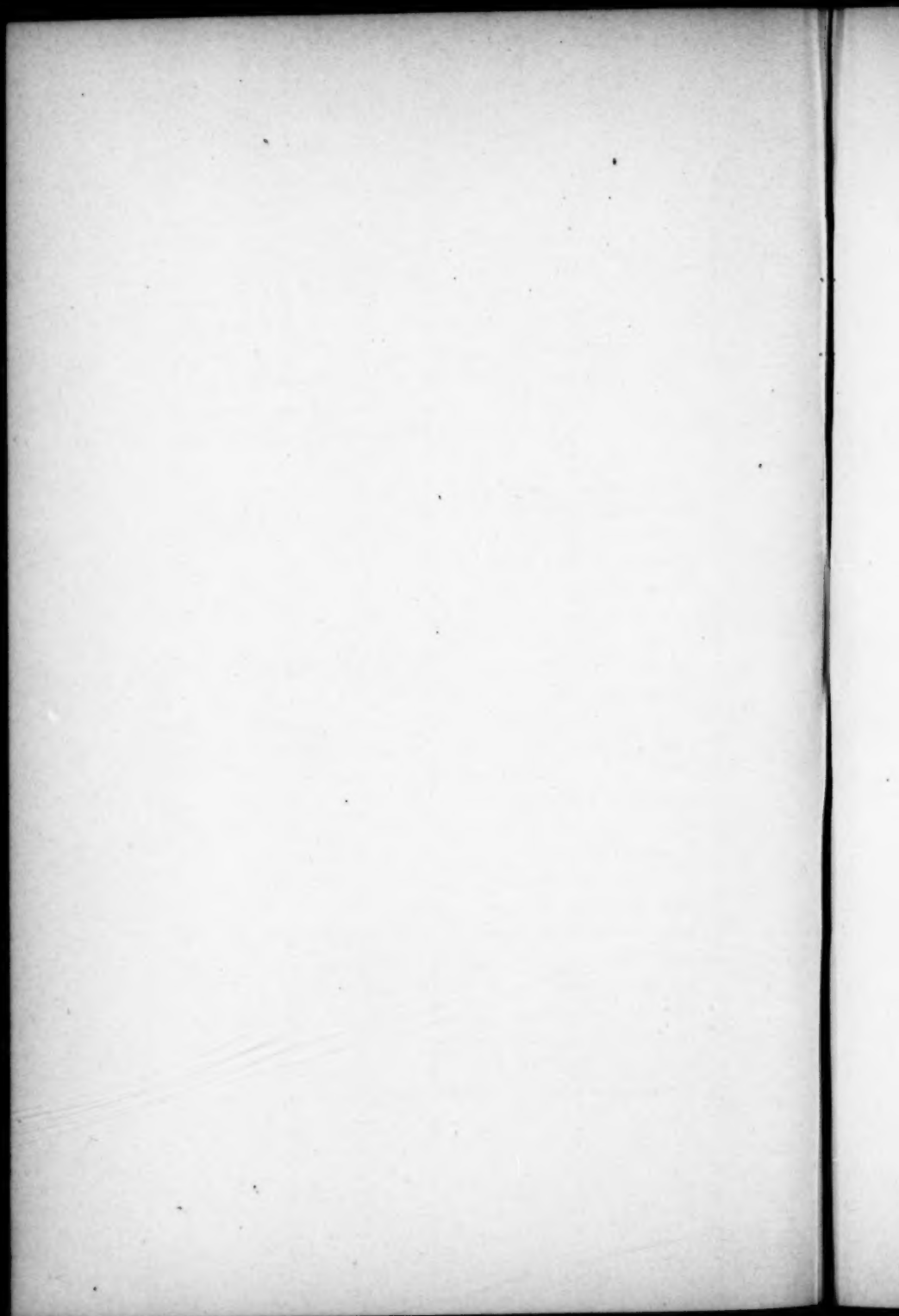
THE STUDY OF STATISTICS,

BY

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Read at Third Annual Meeting of American Economic Association,
Philadelphia, December 28, 1888.



THE STUDY OF STATISTICS.

In view of the widespread interest in the essay presented to our Association at the May meeting, 1887, by Hon. Carroll D. Wright, on *Statistics in Colleges*, no apology is needed for the subject of the present paper. For its treatment, however, there is asked your indulgent consideration. I have no special claim either from study or experience, as has the honored Chief of the National Department of Labor. All that I propose to attempt is an outline of a possible course in Statistics, suitable for colleges or institutions of similar rank. I shall not seek to justify the wisdom or expediency of establishing such courses; I take it for granted that educational authorities are already impressed with this; that the words of Mr. Wright have been accepted in the spirit with which they were tendered; and that there is no need of reviewing ground already so well covered. On the other hand there is perhaps opportunity and assistance to be rendered by counselling as to the actual methods to be pursued, when once it has been decided to introduce this study.

Here is a specific study, new on this side of the Atlantic as a study, its merits vouched for by men eminent in their treatment of social and economic questions, but apparently with no home, history, or interpreter to a people unacquainted with its objects and principles. Its languages are foreign to us; this alien does not even hail from our mother-country, England, but has been reared in Germany, France, or Italy. It is not surprising, therefore, that

there is perplexity as to the best method of naturalizing the educational immigrant. Let us first describe the character and scope of this foreign science, taking for example the well-known volume of Haushofer as a representative of the body of knowledge, which in Germany is included under the term *Statistik*.

This is substantially as follows: There is, first, a preliminary statement of the history and theory of Statistics and of statistical inquiry; a treatment of population statistics, including its present state as to sex and age; its enumeration or the census; its movement by birth, death, and migration; economic statistics, including a survey of production, distribution and consumption, thus embracing the statistics of agriculture, mining, forestry, manufactures, price, transportation and trade; social and political statistics, noting the distribution of population in city and country, with the growth of cities; the statistics of marriage and divorce, of governmental administration and budgets, of schools, education, and justice; *moral Statistik*, a term not so easily translated, but best understood in its explanation,—embracing the statistics of crime, with its varied relations to age, sex, nationality, occupation, education, or religious belief; also of suicide, and of such social cancers as prostitution; and, finally, the statistics of literature, art, and religion.

An exhaustive treatment of this nature is nothing more nor less than an examination of human life in its various forms by the application of statistical measurements. It is statistics applied to human biology, to political economy, sociology, political science, public and private law. In short, it is encyclopedic in its aims, and requires for its proper pros-

ecution, not only a considerable mental training; but also a solid fund of information as a preliminary basis.¹

To my mind, therefore, such a course can be profitably pursued only in a post-graduate department or by collegiate students who have studied advanced courses in social and political science. For the college, therefore, which does not undertake the work of post-graduate instruction there is, as it seems to me, no fitting place for the complete and finished study of Statistics, except it be included in the rank of options or electives open to students of special attainments. This conclusion, however, does not rule out all possible instruction in Statistics in educational institutions of a purely collegiate grade; and the special object of this paper is to offer something, if possible, to the solution of this problem.

The study of Statistics is valuable for two reasons: first, for the information it imparts; and secondly, for the discipline it provides. It is in this latter object that the chief advantage of the study is to be derived in undergraduate courses; and I am persuaded that the study of Statistics should be regarded for

¹ *Geschichte, Theorie, und Technik der Statistik*, by August Meitzen (1886), is even more advanced and critical in its treatment, and at the same time more compact. On the other hand it deals but slightly with the results of statistical investigation as far as these may furnish illustrative material for Social Science, but is devoted rather to the theoretical and technical aspects of the subject.

Traité théorique et pratique de Statistique, by Maurice Block (2d ed. 1886), resembles in its treatment the work of Haushofer rather than that of Meitzen. What is said above in regard to the encyclopedic character of European treatises would apply with full force to that of Block.

the most part simply as a laboratory exercise, to be used in connection with other courses; just as the chemical laboratory is designed to fix more firmly in the student's mind the principles and the science of chemistry, and thus make real forces which would otherwise be but myths of a text-book; or as the dissecting-room discloses secrets in anatomy which no volume or series of illustrated plates, even though interpreted by the rarest pedagogical genius, can reveal. So the study of Statistics can be most profitably combined with courses on Commerce, Industry, Finance or other subjects of economic history. The principle then of this instruction should not be independent of, but subordinate to, other branches.

Take, for example, a course in the financial history of the United States, which involves the treatment of the revenues and expenditures of our government as well as the progress of the national debt. The student will undoubtedly gain a far more lasting knowledge of the subject matter if he pursue a collateral or laboratory course in Statistics which is based upon the Finance Reports. Let him trace the evolution of the Finance Report from its humble beginning; note the gradual increase in the number of the statistical tables from table A to table W, and their significance and value in affording information both to officials and to the general public. If the student be required to do nothing more than to prove the column of figures as to the amount of the public debt given, for example, in the American Almanac, from the Finance Reports themselves, he will have been taught a valuable lesson; he will know where to go in case of dispute; he will have acquired some delicacy in reconciling discrepancies, and he will gain

independence in sharing in the same tools and weapons of the most eminent scholar.¹

It may be objected that this requires time; undoubtedly, but not so much as is oftentimes imagined, for the extra effort given in this direction certainly shortens the time demanded for reading or study of lecture notes on account of their more easy apprehension.

The methods now followed in chemistry regard two hours of laboratory practice as none too many for every lecture attended; the student simply performs experiments which are fully described in the text, and which he may indeed see performed by the instructor in the presence of his class; and yet there is no question in the minds of instructors of chemistry that the lesson is but half learned, unless the student himself carries the experiment through independently and unaided. It is not expected that the student will make new discoveries or add anything in the line of fresh investigation. From two to three years at the very least, must be spent in the chemical laboratory before a student can expect to win new prizes for his chosen science. Even granting that the student is not studying chemistry as a specialist, but only for the one term or year commonly granted to it in our colleges, the experimental work is still regarded as imperative.

Again, consider the application of such laboratory work in Statistics to the tariff history of the United States, a study which Prof. Taussig has shown can

¹The five finance volumes of the American State Papers, covering the period 1789—1828, is a good practice-ground for this purpose. They are rich in statistical material, which is unarranged and not summarized

be made as valuable, both from the standpoint of informing political culture and also of discipline, as any elementary or even advanced subject in applied economics. In this, the study of Statistics should be made the very backbone of the course. There are few studies which are of more value in leading the student to mental habits of exactness, precision, thorough investigation, caution, and even humility, if that be possible, than this study of our tariff history, combined with a strong infusion of Statistics. Such a course should secure some acquaintance with the Commerce and Navigation Reports issued since 1821, with the scattering reports in the American State Papers previous to that date, with the Reports of the Special Commissioner of Revenue for the years immediately succeeding 1864, with Evans' Report, and others of like nature. Acquainted with the use of these, the student is in a position to hunt down some of the numerous statistical errors which vitiate not only the arguments of a political campaign, based upon economic issues, but also more serious articles in the daily and the magazine press. It should be the honest and intelligent aim of colleges and their students to check the current dishonest uses of statistical material for political bewilderment.¹

In connection with a course on the history of industry, advantageous use can be made of the Reports of the Bureaus of Statistics of Labor, when the student, for example, may once for all be impressed, as Prof. Smith has pointed out, with the vicious misapplication of "the average;" can learn with most tell-

¹A fresh example of the irresponsible use of Statistics is furnished at the present moment of writing, April, 1889, in the campaign in progress in Massachusetts for constitutional prohibition.

ing emphasis, which should outwear any amount of political sophistication in after life, the difference between real and nominal wages; and will be led to regard with wholesome suspicion many of the statistical arguments so freely advanced at the present time, as to the relative condition of laborers,—for with some of these reports it may be proved with almost equal facility that the laborer has gone forward or backward, or has remained stationary in his position in life. There is no intention in this to educate the student to view these reports with contempt or cynicism; far from it, for some of these documents are of great value; but as long as the precious and the base pass current at equal rates, the student should be trained in discrimination and in the application of a sounder judgment.

In courses on civil government which should include not only a consideration of the practice of our national administration, but also municipal and town government, there is again a field for statistical exercises in budgets. I doubt if, in any other way, a class can be aroused to a keener appreciation of the problems of municipal government than by the study of the controller's reports of a large city for a series of ten or twenty years. In this connection the study of public accounts from the statistical standpoint is valuable. The attempt to determine the *real* city debt is a problem in point. In some of our cities the figures given indicate almost nothing as to the true financial situation. Why has the municipal debt increased? What proportions of the expenditure fall to the several departments? What relative change has there been in this? are other questions to be investigated.

The foregoing, then, is an outline of laboratory work in statistical practice, which I think can practically be incorporated into civic and economic courses of study. By this it will be observed that the student has gained an acquaintance with the Finance Reports, the Reports on Commerce and Navigation, the Reports of Bureaus of Labor and Municipal Finance Reports, and it will also be noted that some of this work can be easily connected with courses in American history and with courses of a more specific economic nature.

The next point to be considered is the *method* to be followed. There are three general ones which I would suggest: *first*, research and verification; *second*, tabulation; and *third*, graphic illustrations.

First, then, *research and verification*; in this the object of instruction is to lead the student to search for certain statistics, or to verify by authoritative documents figures which may be quoted in current literature. At first the range of statistical territory to be hunted over should be restricted to a narrow range. A practical illustration of this nature is, for example, calling for a verification of the figures given by Pitkin for imports down to 1815, by reference to the finance volumes in the American State papers. This method has been followed with great success by Prof. Hart, of Harvard University, in American statistics; and to him I am much indebted for students' work which has been loaned illustrating that method. A few of the subjects assigned are as follows:

1. State sources of information as to coinage of the United States mint, 1789-1887. This led the student to an examination of the reports of the directors of

the Mint, the Statistical Abstracts, Seybert's Statistical Annals.

2. A statement of the receipts of the United States, 1789-1886. This involved an examination of Gallatin's Report for 1810, for the period 1789-1809; of the Report of the Secretary of the Treasury for 1815, in which year it is noted that there is a difference of over \$300,000 in the statements of the report of the Secretary for that year, and the statement as given in the Finance Report for 1885; for the years 1815-1828, it is observed that the reports varied considerably in form; for the years 1860-1864, it is noted that there is a discrepancy which is found under the head, "Miscellaneous."

3. Another compared the statistics of direct taxes as given in the Statistical Abstract, the American Almanac, Pitkin's Statistical View, and the Finance Reports for the first thirty years of our national history, and reported that all agree in every figure, save a difference between the figures 2 and 3, in the year 1817.

Further exercises call for a statement of the salaries of the President and the Cabinet since the establishment of the government; expenditures for foreign missions; of the judiciary department; the contingent fund of the House; defalcations of officers; and so on in a great number.

Training of this nature makes the student alert, as well as careful and exact in his method of study. If to some these exercises appear insignificant, it may fairly be said, though, of course, it is not an answer but simply enlarges the field of controversy, that there is abundant analogy in the method followed in chemistry or physics. The laboratory exercises as-

signed at the outset in these sciences afterwards appear to the professional chemist or physicist as most simple, as doubtless do the statistical exercises which I have just presented.

Of the second method, *tabulation*, little needs to be said. It can be best employed in conjunction with the foregoing one. One example is, perhaps, sufficient. A class of nine is divided into committees of three, with instructions to report respectively on the production, imports, exports, and domestic consumption of iron, cotton, and wool in the United States in the colonial period, and to tabulate the results. Stress is laid upon the form of tabulation; and, generally, each committee will waste two or three schedules before they hit upon an accurate and compact form.

The third method is the use of *graphic illustration*. At the outset, let me say that I well recognize the danger that exists in frittering away the time of students in the execution of perfect or ornamental plates which belong rather to the department of drawing than to economic training. In exercises of this nature, it is not a question of securing work from the student, but of restraining him from devoting too much time to them. Pupils who shun pages of figures, as they would the hardest page of calculus, find in their graphical illustration a fascination which will play havoc with other portions of the curriculum. The work, if it be undertaken at all, must be carefully planned by the instructor, and constant watchfulness needs to be exercised that the task shall not exceed the ability and a reasonable amount of time of the student.

Let me illustrate my meaning by a practical ex-

ample. Suppose that the young student is studying the natural resources of our country; that you wish to impress upon him the territorial distribution of certain products, as, for example, iron; and that you wish to carry the investigation even to the county divisions of the several states. To ask the student to draw a map, outline the counties, and draw or paint a certain number of dots or circles within each county, which will correspond to the multiples of the unit in iron ore which you may have selected, say 25,000 tons produced in the several counties, is to assign a task out of all proportion to the advantage to be derived. If, however, you furnish an extensive outline map of the United States, such as that prepared under the direction of Prof. Hart, and show the student that he can locate the counties roughly by laying tissue paper over the map of an ordinary political county atlas, and with the census volume before him can easily make the mental calculation as to the proper number of units to allot to each county,—this number to be pencilled on the tissue sheet by the aid of an ordinary rubber die of a given diameter and an ink pad,—then he can, with great rapidity, lay out his map with fairly satisfactory results. By contrivances of this nature, the required time can be so minimized as to bring the work within reasonable limits.

Let it be distinctly understood that graphic exercises in statistics are used simply as a means for arousing the interest of the student in securing along the line of least resistance results which will be of lasting advantage in his educational development. To draw a curve of the national debt from 1789 until 1887 is an easy thing and may seem to some almost

childish; in the student of a junior class it may create inquiry which had never before been suggested, or but vaguely suggested, and prove to be a sufficient incentive for further investigation. Take, for instance, the following as an exercise: On page 19, of Professor Taussig's monograph, "Protection to Young Industries," there is a note with a table giving the imports, exports, exports of foreign produce, and the price of flour per barrel. There is a certain relation between these different sets of figures. The student reads the paragraph and discovers in a general way the truth stated in the text. Require the class, however, without any previous reference to this passage, to plot on the same chart curves representing these columns and one or two other series of statistics; and then to reason and explain the picture which is thus presented, and you have given them a double lesson, a lesson in logic, as well as in economic history. You have done much to induce the student to reason for himself.¹

¹With regard to chart paper for statistical illustration, my own experience may be of some value. As lithographed cross-section paper is too expensive for general purposes, I have had various sizes printed. At first the chart I adopted was 20 by 28 inches, ruled into tenths of inches—the tenth line being ruled more heavily. This gives 280 units for time and 200 for amount, etc. This did not prove to be a convenient subdivision to use for historical curves of the United States, when it was desired to cover the 100 years of our national history, for it is wise, if possible, to have the decade or half-decade year coincide with the heavy ruled line. The size is also in many cases objectionable, as being too large to place in the student's note-book. I have consequently had printed small sheets, 8 by 10 inches, ruled according to the metric system, the subdivision being 2 millimetres, with the fifth line heavier. This admits of 250 spaces for time and 200 for amount. I may add that on account of the fine ruling required it was necessary to have a special

In the use of graphic representation as one of the methods of laboratory work, it seems to me advisable also to make the art itself a series of progressive and educational exercises. That is, the student should have brought before his attention a variety of ways that may be used in illustration. These methods have been roughly divided by European statisticians into diagrams, distinguished as the dot or point, curved line, circular or closed axis; surface figures, as the square, the circle, the isosceles triangle; into cartograms which include maps with surface diagrams, maps colored according to territorial divisions, maps with curves, and maps in relief.¹ In the use, therefore, of graphic illustration, there is no need of confining the student to that form so generally used, the curved line; but his range may be widened, until he learns the peculiar fitness that there is in each, the limitations of the various forms, and the defects to be avoided. The graphic method is more and more being used for popular illustration, and oftentimes grave misconceptions are the result.

Let the student learn, for example, that the isosceles triangle is preferable to the square or the circle in the representation of numerical ratios, where the increments are slight but nevertheless important, and that it is an unsafe method to follow if the increments are large, unless narrow bases are employed. He needs

set of pens made. At the same time I had large sheets of heavy brown paper ruled by centimetres (corresponding to the heavy fifth lines of the smaller sheet) in the largest size possible, 48 by 48 inches. These are serviceable for charts for class-room instruction.

¹These various methods I have described in detail in an article "Elementary Notes on Graphic Statistics," published in the *Technology Quarterly* (Boston), October, 1888.

also but a slight suggestion to perceive that comparison by means of an inner and an outer circle or square is most defective. A series of progressive exercises would include such tasks as these : first, the representation of two arbitrary numbers as 25 and 100 by half-a-dozen different methods. The student will probably hit upon the line, the circle with proportional areas, the circle with proportional sectors, two squares, or triangles with equal bases, etc. Let him be sharply questioned in regard to the respective merits of these for general illustration. A second exercise is the drawing of a curve of, say, the national debt, in which the increment used is small for the time, indicated by the line of abscissas, while the increment for the amount, denoted by the perpendicular line, is large ; require then the conditions to be reversed and the increment of time to be represented by a larger space and the increment of amount by a smaller ; and let the student note the force of the respective changes. A third exercise will comprise the drawing of a number of curves, in which the student will learn the use of colors or forms of lines to prevent confusion. A fourth, the representation of a total separated into its elementary parts ; as in the familiar way of illustrating the total receipts of our government, and at the same time indicating the various kinds. Here we have a series of superimposed parallelograms, and the student can be given a lesson in cross-hatching as well as in colors. A fifth exercise may be devoted to the preparation of a map in colors to represent, for example, the congressional vote of the different States on the establishment of the United States Bank, or of the production of cotton or the proportion of voters to the total population.

With five such fundamental exercises as these, the student is prepared to examine with considerable judgment the numerous statistical albums and atlases which are so frequently issued in these days, but which need to be used with caution, and should be preceded, if possible, by special training.

With this hasty sketch of the available material and the method to be followed, the subject has by no means been exhausted. Every instructor will quickly discover new methods as well as improve upon those already mentioned. My only apology for this unsatisfactory treatment of the subject is that, to me at least, it has largely been pioneer work in which there are confessedly many mistakes and steps to be retraced.

Before concluding let me add a suggestion in regard to the study of Statistics in its fullest conception,—the study which at the outset was relegated to post-graduate courses or to electives requiring more than the ordinary amount of economic instruction. Until recently there was no work in the English language upon this subject. Instructors who wished to establish such a course were forced to resort to Block or Haushofer. Now, however, our own Association has come to the rescue in the publication of Prof. Richmond M. Smith's admirable monograph on Statistics. The point which I wish to make is that from this as a starting point excursions can be profitably made into the field of American Statistics of an economic or sociological character. It is my impression that the abundance of fresh material here offered is not adequately recognized by scholars in general. Registration Reports, Health Reports, Insurance Reports, Reports of Boards of Charities and Correction and of

Prison Commissioners, are issued annually in many of our States. Many of these, to be sure, are undigested, poorly tabulated, and ill arranged, but yet contain detailed data which only await the industrious investigator with a sound judgment for the production of fruitful results. As it is they are little used, save by professional and trade papers; in their broader applications to social science they are neglected. Such material would be most richly prized by European statisticians and should not by our own scholars be allowed to accumulate unnoticed.

Even if nothing more were done than to secure a uniform presentation of data by the various bureaus of the several States or to awaken a more intelligent conception of the utility of Statistics on the part of officials who now perfunctorily fulfil the bare letter of the law, something would be accomplished.

The Effect of Correct Analysis on Doctrine in Political Economy,

BY

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Read at the Third Annual Meeting of the American Economic Association,
Philadelphia, December 28, 1888.

The Effect of Correct Analysis on Doctrine in Political Economy.

I.

Political Economy is now the uppermost study. The vast increase of population and wealth, the multiplication of machines, the continuous invention of new processes, the development of Continental systems of intercommunication, and the binding of the whole world into one great traffic pool, would account for the interest manifested in all quarters.

It is likely, however, that the changes and developments going on in the human mind and in society are doing still more to stimulate desire for economic knowledge. The spirit of Democracy is no longer a local exhalation; it is moving round the world. Economic emancipation accompanies political enlargement. The great labor movements of the last half century are but playing ripples on the advancing edge of a great tidal wave sweeping on to overwhelm and dissolve all institutions not founded on the everlasting rock.

The thirst for economic knowledge is not only intense and wide-spread; it descends to the humblest classes. A member of this body (not the writer) argued ably, some years ago, before a teachers' convention in favor of introducing Political Economy into the common schools of a western State. During the year now closing the Commissioner of Labor of that State has resumed the agitation. In a conference of teachers and others interested, it came out that no

one present could suggest any system or scheme for giving such instruction, which would be generally acceptable. Admirers of Carey and Bowen could not tolerate the books of Wayland and Perry; and disciples of these teachers repudiated the writings of Greeley and Thompson. Supported by eminent authority, some insisted that Political Economy ought not to be taught in the common schools at all, because it is not in any exact sense a science.

It is a popular belief that Political Economy has been an unfruitful field of study, and it is claimed that our young men who have been instructed in our schools and colleges throw their Political Economy to the dogs as soon as they get into the busy world.

If these things are so, all serious suggestions towards simplifying and elucidating the subject, so as to render its doctrine easier of acquirement and application, must be welcome. Our concern, whether as economists or as citizens, is not merely to attain ourselves to true and clear understanding; it is that, but it is much more, to assist others to sound knowledge and wise practice. Above all, it is important that the truth of things economic should be spread among the men who do the work of the world, and are resolved to know what may be known as to their economic position in society. They already understand that economic reform will accompany if not precede all social and political meliorations.

II.

The matter I desire at this time to submit, can perhaps be best approached by a brief critical reference. For the present purpose the treatises on Political

Economy may be roughly grouped into two classes. Those of the first class are made up severally, of an apparently fortuitous concurrence of essays on various economic topics. Had an alphabetical arrangement been thought of, it would have done just as well. As extreme examples, take these :

1. Value, demand and supply, work, labor, services, capital, agricultural economy, exchange, trade, money, property, distribution, taxation, protection and free-trade.

2. The Nation, population, land, labor, money, taxation, commerce, manufactures, education.

The treatises of the second class are those of men who cannot endure to have all matters thrown into hotchpot, but feel bound to group and arrange them along some line of filiation. This is what must be done in any work pretending to be scientific. Phenomena are to be assorted and grouped, postulates distinguished from maxims, primary causes from secondary causes, efficient from formal causes, corollaries from leading theorems.

However, we are not obliged to contend for a principle. J. S. Mill, master of logic in all its application, set the example of a treatment correct in principle and admirable in many ways, and our best treatises are those framed on his model. It will be contended that a capital error was committed by the great English thinker in ignoring consumption as an integral and fundamental branch of Political Economy.

I think that those who know most about Political Economy will be the most ready to admit that there is room, not only for profound investigation into the subject matter of the science, but for improvements in arrangement and illustration for purposes of in-

struction. The apparent success which attended an experiment of thirteen years in the instruction of undergraduate students in the elements of Political economy on the plan here incidentally outlined, is my only justification for presenting to this body the particular suggestions of this paper.

The same experience has intensified perhaps to excess the conviction which all must share, that a sound knowledge of these elements is the only sure foundation, on which to build any permanent constructions of public or private economy. I propose simply to illustrate the assumption involved in my title,—that correct method and analysis may simplify difficulties, contribute to clear definition and lead the student by a thread of genuine filiation from stage to stage of the subject.

III.

Leaving the term "Political Economy" to serve as a popular title, conveniently vague and flexible, the term "Economics" may be taken into service as a technical equivalent, for scientific use. Economics is a branch of a comprehending science of sociology, naturally divisible for discussion into three fields:

1. The field of ethical relations.
2. The field of industrial relations.
3. The field of jural relations.

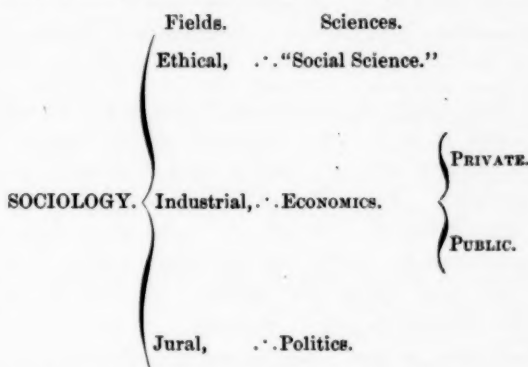
The industrial relations of men who do not exist but in communities are the subject of economic enquiry.

ECONOMICS IS THE SCIENCE OF INDUSTRY.

The industrial field may be viewed from either of the adjacent fields, that is either from the social or

the jural side. Industrial relations may be approached either from the standpoint of society or the State.

If this analysis is correct, we come at once to a natural, fundamental and necessary separation of private from public economics.



If this separation were not radical and necessary, its convenience would commend it. It is a great liberation to a student to know that along one branch of the science lie such topics as labor, wages, profits, value, &c.; and along another branch such as taxation, money, education, the postal establishment, protection, &c. He will, of course, learn at length that some of these titles interlace and spread over the separating boundaries.

IV.

Confining illustration for the present to the field of private economics, I desire to emphasize what seems to me to be a matter of fundamental importance therein,—that the phenomena and doctrine of consumption should be put at the bottom of any rational system or scheme of private economics.

PRIVATE ECONOMICS.

Want.	Work.		
	In Chief.	Subsidiary.	
Consumption.	Production.	Distribution.	Exchange.

The best place to begin anything is at the beginning; and it is a mere truism that the wants and desires of men are the spring and motive of industrial activity. From this starting point the student may see "what it's all about," and may form his best acquaintance with the economic man. It is as consumer that man first appears on the economic field, in the logical order, at least.

In practice it has been found a useful exercise to group a considerable body of phenomena, in order to derive by an inductive process the maxim or leading generalization, that in an advancing state of society, consumption is constant, progressive and cumulative.

This has been followed by an elaboration of the secondary causes or conditions which make consumption to be what it qualitatively at any time may be, under such heads as physical environments including an account of the destructive action of nature, stage of civilization, religion, education, fashion, the folly and wickedness of men, &c.

This exercise serves to interest the student at the very outset in the observation of industrial phenomena,—the use of the inductive method which has been notoriously too much subordinated by economic writers, especially text-book writers.

If one next takes up a quantitative consideration of consumption, the population question naturally presents itself, and it is a great convenience to examine that important topic free from its complications with diminishing returns, rent, wages, and interest.

V.

Having discussed the nature and extent of man's wants and desires, we naturally proceed to inquire into the ways and means by which they may be satisfied. The traditional title of Production serves to group them for convenient treatment. Let me draw a single instance illustrative of my thesis from this department.

The English economists lay down the primary agents of production to be land, labor and capital. The analysis I am now illustrating sets out the primary agencies of production to be two: 1. Nature, 2. Man; nature furnishing matter (*i. e.* land,) and force in many modes; man, furnishing that portion of his efforts to be called labor. Capital, whether there be meant a part of wealth or a body of persons, is not here included as a primary agent of production. Where, then, is the place of capital? It belongs under the head of the results of production. The results of production are two-fold: (1) the satisfaction of want through services in which the corporeal media are inconsiderable; (2) the satisfaction of want through material products called wealth. But the satisfaction through wealth may be immediate or remote. Some portion of wealth at once disappears from the field of production and appears immediately on the scene of consumption. But man is a pro-

vider, *i. e.*, a being who looks before. His experience on the planet has taught him that by reserving from present use some part of his produce and disposing it according to certain ascertained relations he can call into his service the properties of matter and the forces of nature. From a handful of seeds he gathers a harvest; a little flock of sheep gives an increase of heads. Man, the provider, thus arranges for his remote and ultimate satisfaction by reserving a moiety of produce from present consumption. This portion he subjects to further employment in production. And this is capital. Capital, then, being a part of the results of production, being itself a product, cannot be consistently enumerated among the primary agencies of production.

Continuing the analysis, capital naturally subdivides into the two traditional categories of raw materials and instruments, and under the head of instruments, along with tools, implements, vehicles, &c., should logically be scheduled LANDS, meaning by that term *land* subdued, tilled, and otherwise fitted for and used in production. A seed-bed, a garden, a farm is a product and belongs in the genus wealth; and because devoted to further production, to the species capital. The bearing of such a doctrine upon the doctrine of rent is, of course, obvious.

The language of Alexander Hamilton may at this point support those who are doubtful about departing from the traditional teaching on the subject of rent. (See Report on Manufactures, Ann. Cong. 3, 976.) "It seems to have been forgotten that the land itself is a stock or capital advanced or lent by the owner to the occupier or tenant, and that the rent he receives is only the ordinary profit of a certain stock

in land, not managed by the proprietor himself, but by another to whom he lets it."

Under a quantitative consideration of production the doctrine of diminishing returns and also that of over-production naturally fall in.

The suggestions of this section may be illustrated by the following synopsis:

PRODUCTION :

1. Agencies of.

a. Nature.

1. Matter — LAND.

b. Man .'. LABOR.

2. * * *

3. Results of.

I. Service.

II. WEALTH.

a. For immediate consumption,

b. For further production —

CAPITAL.

(1) Raw materials.

(2) Instruments.

LANDS.

Animals.

Machines.

Impliments.

Tools.

4. * * *

VI.

Consumption and production are complementary and constitute the quasi-physical side of private economics.

All the phenomena and doctrine of the science might, if sufficient ingenuity were used, be grouped under these two heads. But such a refinement would violate tradition and common sense to no advantage. There are great practical and quasi-ethical questions

which ought not to be forced into undue subordination merely to help out an ingenious synopsis. Distribution and exchange therefore, though in their nature continuations of production by which the proximate results of production are brought to the doors of consumers, demand independent treatment. (See synopsis 2. *ante*.)

At any moment the producing community is in possession of a mass of products vast in bulk and variety. They are for use; they must be used. Want is incessant; desire intense. Instantly the question arises in what order and proportion are the co-operating producers to enjoy these good acts and things? This is the distribution question, and it is at bottom ethical. The question itself postulates (1) justice, (2) the right of individual use, (3) the right of social control of appropriation. There has been no scientific solution of the distribution problem, but distribution has gone on after some fashion from the foundation of the world. The only working solution is the historic one of property and competition, moderated and mitigated by a tardy altruism. We simply distribute as well as we know how up to the present time, and we may expect to improve upon present methods.

Under the head of distribution, such instances as the following may serve to show how a correct analysis may simplify difficulties.

1. Take **WAGES**. Here the question is, "what share of produce shall be assigned to the operatives?"—what share of current produce, not what share of previous savings, may be available for the actual payment and present settlement of the labor-share of produce. The wage-fund theory, in its crass form, at

least, has here no place or footing. A clear and simple statement of the question at once dissipates an apparently immense obstruction but which was never anything but a fog-bank.

2. Take RENT. If lands have been properly classified as capital, rent assimilates to interest and is the share which a class of producers is warranted in withdrawing in consideration of its coöperation in the productive processes.

Thus used, the term rent may mean just what the men who pay rent and receive it understand by it.

The limits and objects of this paper do not permit a criticism of the Ricardian doctrine. If I were permitted to say two words, they would be that the Ricardians (1) commit the errors of treating a formal cause as an efficient cause or perhaps of treating one part of a compound cause as if it were the whole. (2) They, or some of them, confound the distribution question of the assignment of shares to coöperating producers, with the exchange consideration of land value as affected by monopoly. This view is supported by the authority of a great name. (See Maine, *Village Communities*, p. 190.) "If the writers (*i. e.* Political Economists) had always recollected that a competitive rent is, after all, nothing but price payable by installments, much unnecessarily mysterious language might have been spared and some (to say the least) doubtful theories as to the origin of rent might have been avoided."

3. Take PROFITS: A correct analysis, it is held, makes profits to be the residuum of produce after the withdrawal, in order, of public charges, wages and rent PLUS interest. Up to the point where profits appear, all the parties have taken out ascertainable

and definite portions of produce. Taxes, wages, rent and interest are or are made to be so much, and the receivers depart, resigning all claim to any residuum. If nature bestowed her gifts with equal beneficence, and if men could have perfect knowledge ; if nature never destroyed anything, and if men never made any miscalculations, distribution would, at this point, be complete. There would be no residuum. But men are ignorant and nature capricious ; men are foolish and nature destructive. In consequence, produce is never a certain amount. It is a very uncertain amount and our knowledge of the amount is, up to the present, very inadequate. The amount is in many cases less than our ordinary and reasonable expectations, and the expected residuum appears on the wrong side of our ledgers. These cases we may, however, neglect, for the reason that industries which do not pay ascertained costs cease to be carried on.

The question then is, as to the uncertain and unknown margin of produce over and above the amounts withdrawn by the parties whose shares are ascertainable. Whose shall this margin be, and upon what grounds ?

This Margin, in its nature uncertain and unknowable unless by rough approximation to the coöperating parties in production, is the nucleus and substance of profits. It falls to the employing capitalist as the assignee of all other parties who prefer and are in position to take out ascertainable shares and who desire no risk of loss or diminution of income. The employing capitalist, I say, for no empty-handed entrepreneur, no mercenary "captain of industry" can do what is necessary to entitle him to profits proper. Such a functionary may be entitled

to very great wages of superintendence. It is because wages of superintendence are commonly assignable to the same persons who receive profits, that the nature of profits is obscured and confused with such wages. The receiver of profits must belong to the capital-owning class and possess or control an amount of wealth adequate to assure the coöperating parties in production that their ascertainable shares will be apportioned and paid.

DISTRIBUTION.	Non-Competitive,	State,	Produce.
		Church, etc.	TAXES.
	Competitive,	"LABOR,"	CHARITY.
		Non-Employing,	WAGES.
			RENT.
		"CAPITAL,"	INTEREST.
		Employing, . .	PROFITS.

VII.

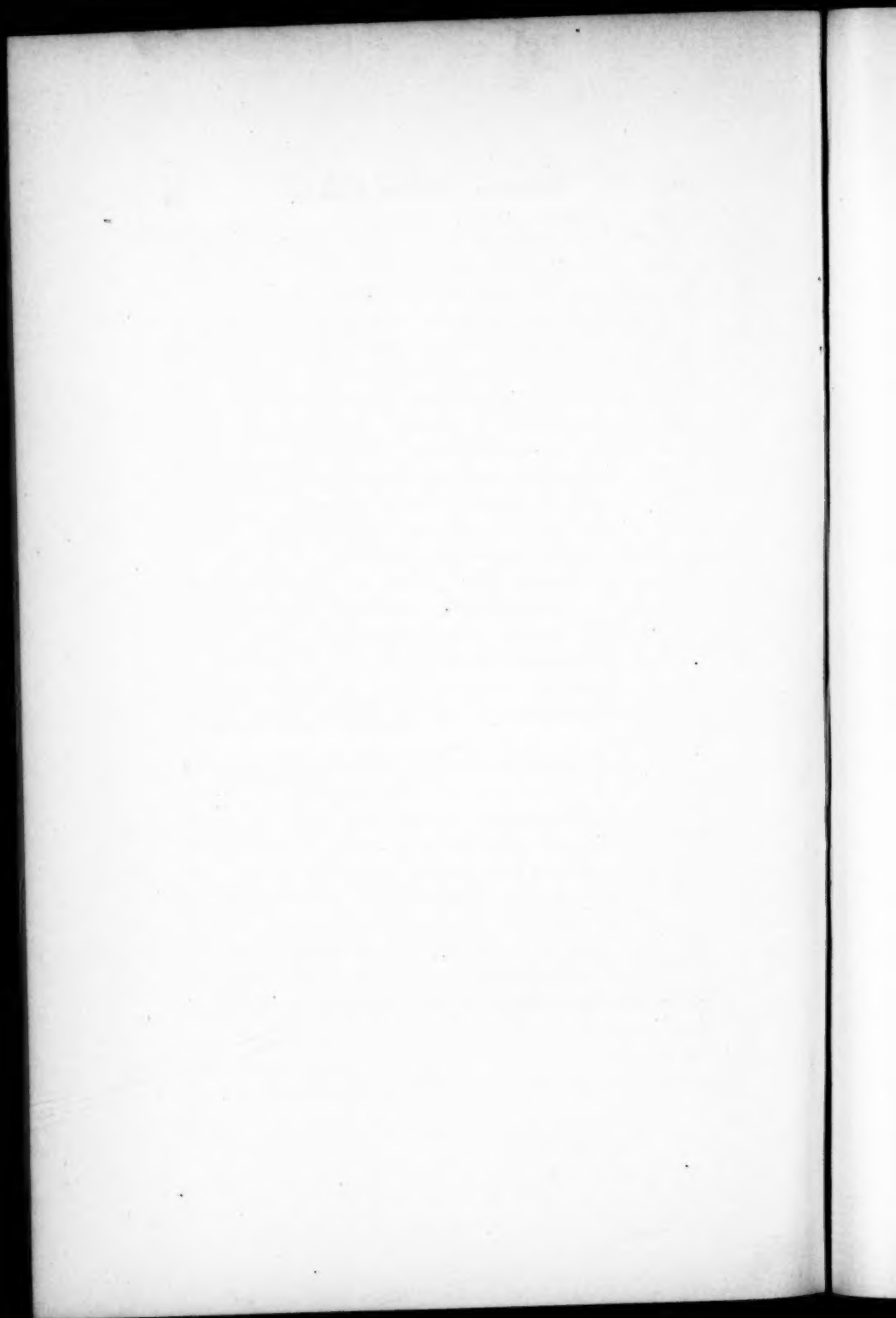
Let it now be granted that the principle of distribution has been settled upon to the satisfaction of all reasonable persons, and the amount of the several shares in their order acceptably determined. There now arises another question; how shall the masses of produce be actually and physically assorted and apportioned to all the parties in interest? This ques-

tion also has its historical solution and the end is accomplished by the function of EXCHANGE. For any other plan we must await the action of our friends, the Socialists. When they are agreed we may possibly adopt new ways. But it is difficult to imagine how parties who shall, under a Socialistic régime, have received each a perfectly just proportion of produce, can be restrained from trading with their neighbors. It is also difficult to imagine how such an idea as that of value can arise, or if that were possible, how it could be ascertained except by, and by means of, actual exchanges. Distribution is merely a process of establishing the rights or claims of coöperating producers. Exchange establishes equivalencies in products and thereupon actually apportions and delivers them. I must be permitted to introduce here the instance which best of all may illustrate the point of this paper. There are teachers of political economy who thrust the doctrine of value into the faces of the students in the opening passages of their books. Such works, of course, rate the science from the standpoint of the trader, and handle commodities as if they had legs and brains.

The doctrine of value is the most difficult and subtle in the whole science. To thus obtrude it at the opening of an elementary course is misleading and confusing to the last degree. It is like offering Sturm's theorem to the beginner in algebra. Value, instead of being the first word of political economy, is almost the last word. The question of value is much simplified when it is understood that it belongs under the head of exchange and is nowhere else to be raised. It is the perennial vice of the Socialists that they raise the question of value under

the head of production. "Does capital produce value?" is their query, to which the answer may be, "No, neither capital nor labor produces value." They produce satisfaction of human want (if they do produce anything), either by means of services or by means of wealth. Now whether value shall attach either to services or to wealth, depends on their getting into the field of exchange, and upon the relations of persons and property in that field. Keeping in view the proper time and place for the consideration of value, it is less difficult to frame a practical workable definition of that most elusive term. Value is simply THE ASCERTAINED RATIO OF EXCHANGE OF PRODUCTS. This is what value is, exchanges make value to be. A great many modifying circumstances or secondary causes, such as monopoly, cost of production, utility and custom make it to be what in any given case it may be. It is an ancient vice of political economists to confuse efficient and formal causes.

If these examples shall serve, and shall be approved as sufficient, to support the main proposition of this paper, they are enough; if not, then they are more than enough, and others which might be brought in both from private and public economics would fall with them. I submit them to the judgment of the Association, assured of a hearty agreement on all parts in the great desirability of so simplifying the elements of this science by clear analysis "that the wayfaring man, though a fool, may not err therein."



AN HONEST DOLLAR.